



Talent Wars

Preparing Undergraduates for Information Security Careers

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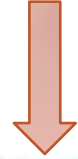



Target Audience

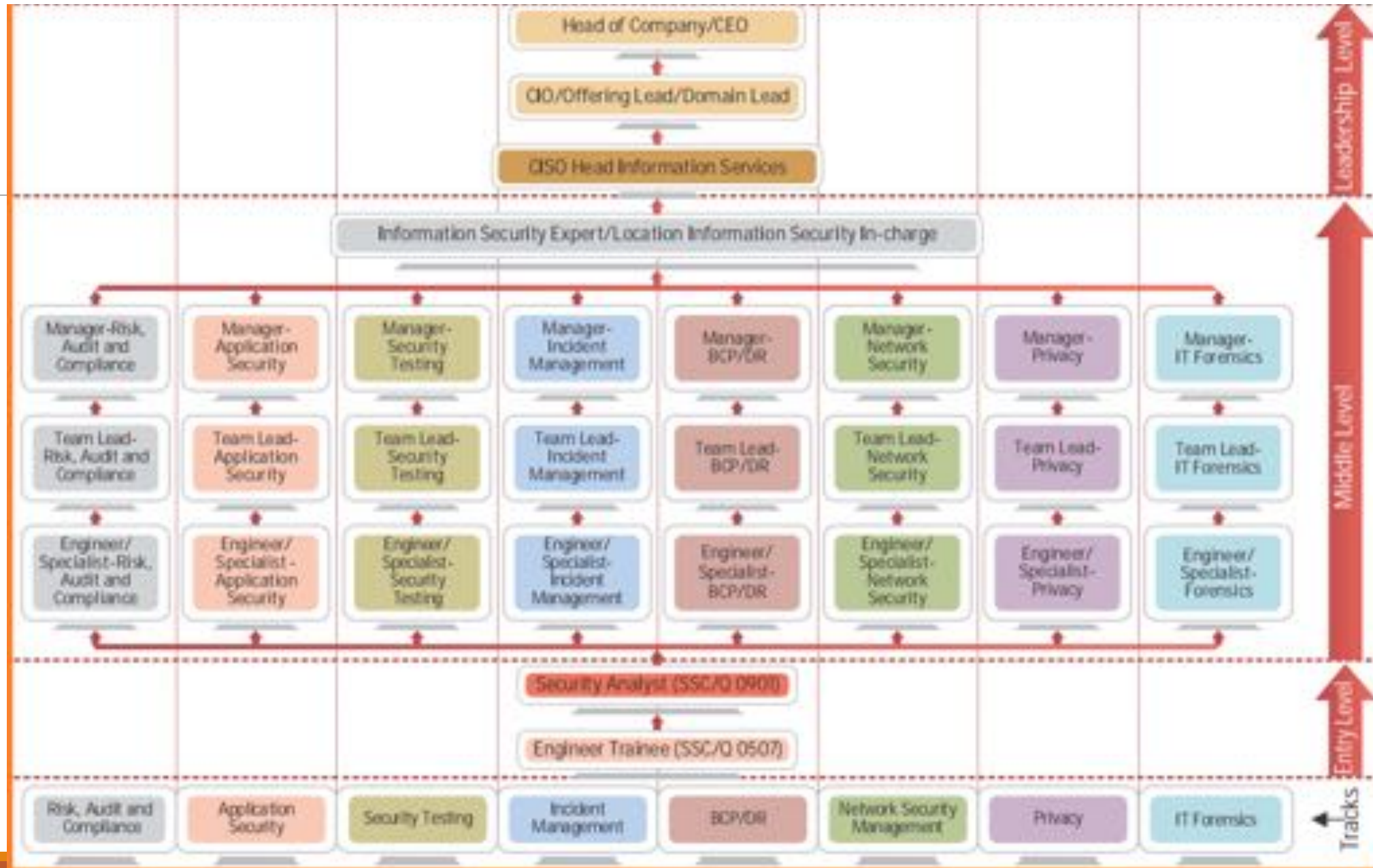
- Managing Information Security team
- Entering or advancing in the profession
- Mentoring someone entering or advancing in the profession

Demand For Talent

- ISACA predicts there will be a shortage of 2 million cyber security professionals by 2019.
- Cybersecurity Ventures predicts 3.5 million unfilled jobs by 2021.



SECURITY				
Data Security Analyst	\$ 102,000	\$ 121,000	\$ 145,000	\$ 171,500
Systems Security Administrator	\$ 92,750	\$ 110,000	\$ 132,000	\$ 156,000
Network Security Administrator	\$ 92,000	\$ 109,250	\$ 131,000	\$ 155,000
Network Security Engineer	\$ 97,000	\$ 115,000	\$ 138,000	\$ 163,000
Information Systems Security Manager	\$ 115,250	\$ 137,000	\$ 164,250	\$ 194,250

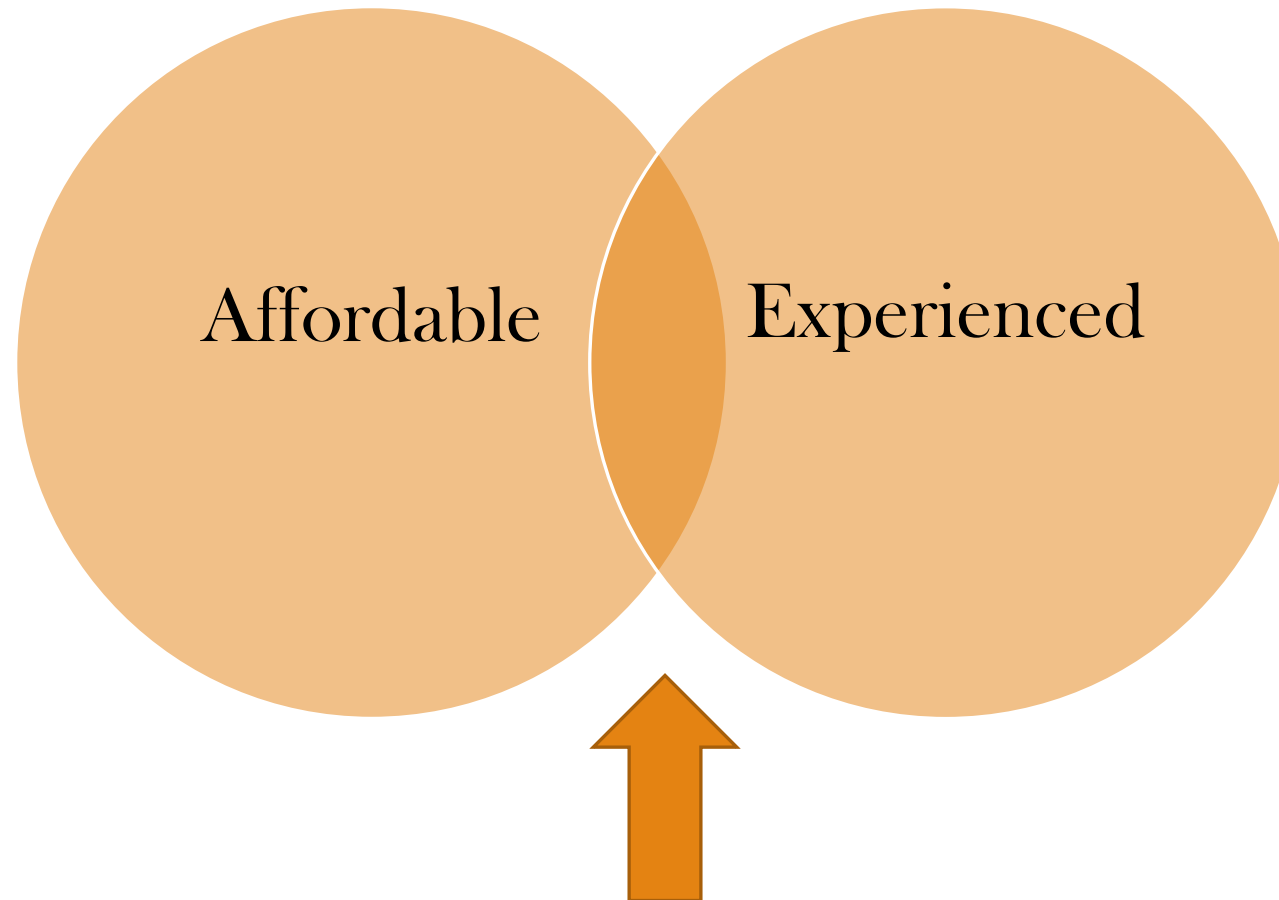




Demand For Talent

- Information Security leaders will find it increasingly difficult to recruit and retain staff.
- Traditional compensation models reward longevity and encourage management track.

Dilemma





As CISO...



Expanding Resources

We have added three resources to get assistance with our program:

- Part-time student workers
- Summer interns
- Partnership with PhD researchers

Part-Time Student Workers

- Identify short term tasks, no longer than a semester
- Young people still have imagination!
Give them opportunities to contribute to discussions.
- Include in staff meetings and office events





Student Worker Success Stories

- Automate network blocking based on IDS alerts
- Contact system owners to discuss vulnerability scan findings
- Customization within the GRC application
- Develop awareness training presentations
- Run exhibits at Security Awareness Night



Candidate Pipeline

- You don't need to be at a university to form a relationship with one; don't limit yourself to Computer Science departments
- Become a guest presenter at university classes and industry events
- Pipeline of incoming staff can be good for succession planning and promotions



Interviewing

- Writing skills
- Presentation skills
- Case studies
- “If you want to secure computers, you should first be good at using and fixing computers.”



What do Student Workers seek?

- Income
- Flexible schedule
- Great experience
- References



Attracting Talent

- Training opportunities
- Rotation experiences
- Telecommuting opportunities
- Quality of life
- Supportive culture
- Casual attire



Next Steps for Recruiting

- Meet with HR departments to share salary data and develop career paths
- Create Individual Contributor positions
- Recruit at campus job fairs
- Consider scholarship opportunities with commitment to work
- Accept 2-5 years time horizon as normal



As Professor...



Why Teach?

- Gain credibility with faculty
- Better understand students; learn from them
- Career diversification
- Give back to your profession



Class Topics

- Network security
- Organization security
- Governance, Risk and Compliance
- Identity & Access Management
- Database security
- Host and Web vulnerabilities
- Incident response, malware
- Encryption
- S-SDLC
- Cloud security, vendor management
- Business Continuity Planning, DR
- Social engineering
- Physical Security
- Project management

Class Demonstrations

- Windows permissions
- File encryption
- Nessus host scanning
- BurpSuite web scanning
- MetaSploit malware creation





Class Demonstrations (upcoming)

- Splunk logs
- WireShark
- Create and harden a cloud server



Class Final Project

- Teams perform Risk Assessment at a willing local businesses
- Negotiate Statement of Work
- Approval of assessment checklist
- Onsite interview and walkthrough
- Delivered as executive summary, recommendations, and presentation

Class Feedback

- *“Really loved the professionals brought to class to give demos or talk about their everyday job activity in IT Security field.”*
- *“The hands-on experience as a consulting group was invaluable.”*
- *“Professor Howe truly cares that the students learn and that what we learn can be applied to real life. I hope he doesn't become a bitter professor and continues to enjoy teaching.”*



Next Steps for Job Seekers

- Attend job fairs
- Industry involvement before graduation
- Find mentors (not your boss)
- Gain experience
- Never stop learning



Sharing economy



An old workforce,
a new workforce



Learning styles &
knowledge transfer

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Freelance economy
& Hollywood Model



Open innovation &
Crowdsourcing



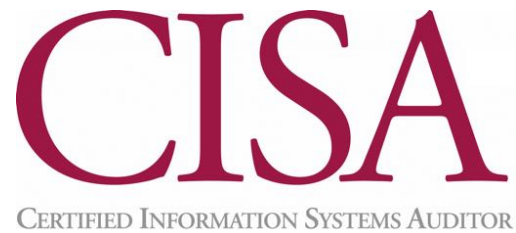
Reputation economy

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Experience and Learning

- Independent contracting
- Internships / part-time work
- Volunteer experiences
- Class projects
- Blogging
- Personal projects
- Certifications

Certifications





Thanks!